

# Zheyuan (Charles) Xu

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## EDUCATION

### University of Washington

*Master of Science in Computer Science and Systems*

*Sep 2020 - Dec 2021*

### Georgia Institute of Technology

*Bachelor of Science in Computer Science and Electrical Engineering*

*Aug 2015 - May 2020*

## EXPERIENCE

### Research Assistant

Jan 2020 - Aug 2020

*GTSR Lab*

*Atlanta, GA*

- Worked on building GT-MAB 2.0, participated in mechatronics design and firmware development in production level C++ code with well-written documentation
- Improved communication link between blimp and ground station, lowered latency by more than 150 times
- Developed ground control software in both Matlab and C# for debugging purposes
- Worked on refurbishing and automating OSV (omni-directional surface vehicle)
- Integrated RTK (real-time kinematic) GPS, enabling centimeter-accuracy in localization and heading measurement

## PATENTS

### Flight Control System for Miniature Aerial Robots

*A low-power, low-latency, lightweight headless flight control system suite for indoor robotics systems*

- <https://licensing.research.gatech.edu/technology/flight-control-system-miniature-aerial-robots>

### Highly Effective Motion Marker for Small Aerial Robots

*A robust, lightweight, low-power active infrared localization marker*

- <https://licensing.research.gatech.edu/technology/highly-effective-motion-capture-marker-small-aerial-robots>

## SELECTED PROJECTS

### GAIA 2.0 | A web app for monitoring natural disasters and monitoring rescue missions

Feb 2021 - Apr 2021

- Designed the frontend animation in Three.js WebGL, HTML and CSS
- Implemented the backend in Azure VM with RabbitMQ and BigQuery for real-time information updates

### AdaEye | A voice-controlled navigation and cognitive app for visually impaired

Feb 2021

- Designed the frontend in Swift, allowing **voice-only** login, registration and scan of surroundings
- Hooked up Arduino and camera gimbal, enabling voice control of gimbal by integrating RabbitMQ on Azure VM
- Built a chatbot on the frontend, enabling voice query and answer by integrating GPT-3 and AVFoundation

### Neomap | An augmented-reality app for share your new year resolution and relive your older memories

Dec 2020

- Integrated hand gesture detection with optimized **Reality Kit** code from WWDC 2020, allowing real-time keyboard-less reaction to user posts
- Integrated **Firebase** for storing user information, user posts, and user authentication

## TECHNICAL SKILLS

**Languages:** Java, Python, C/C++, C#, SQL (Azure, CockroachDB and BigQuery), JavaScript, HTML/CSS, Dart, Swift, Matlab, CUDA C++

**Frameworks:** Flutter, React, Node.js, Three.js, Cannon.js, Flask, Unity, RabbitMQ, ROS, GCP, Azure, AWS

**Developer Tools:** Git, Docker, Google Cloud Platform, VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse

**Libraries:** Pytorch, Tensorflow, pandas, NumPy, Matplotlib

**CAD:** EAGLE, SOLIDWORKS, ALTUM, Blender

## AWARDS AND HONOR

**Best Use of Google Cloud** - MakeHarvard 2021

**Best Use of Google Cloud and Radar.io Most Creative Award** - MLH New Year New Hack 2021

**First Prize** - Campus 2030

## LEADERSHIP

Mentorship for Cal Hacks *hello:world* hosted at UC Berkeley (Flutter and React Debugging for participants)